Report AR-ONR-008

Stress and Coping in Recruit Training:

Roles of the Recruit and the Drill Instructor

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This is the Final Report of a project carried out between September 1, 1977 and November 30, 1982. The research dealt with stress as a factor in recruit performance and attrition. The research focused on (1) individual differences among recruits in their cognitive appraisals of task demands and their wherewithal to meet; (2) development of televised modules directed towards influencing these appraisals, and (3) the role of the training unit environment. Seven Technical Reports resulted from the project.		

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The primary focus of this project, which encompassed the time period from September 1, 1977 through November 30, 1982 was factors related to performance and attrition among Marine Corps recruits. It was concerned with identifying dimensions of stress associated with recruit training and the possibility of developing stress coping skill interventions suitable for recruits. As factors related to recruit performance and attrition were identified they became foci of our research. For example, the recruit training unit environment was analysed carefully and the effects of relevant aspects of the training unit environment were investigated. Since the key factor in the training unit environment is the drill instructor, we were especially interested in how drill instructors influence the recruit experience.

Marine Corps recruit training is a period of rapid resocialization and enculturation. It requires that young individuals develop, in a relatively short time, new behavior patterns that meet organizational needs. A staff of carefully selected training supervisors, the drill instructors, function as the agents of this change. The staff's performance is evaluated in terms of its ability to teach the desired behaviors and eliminate unwanted behaviors and attitudes. The training process thus consists of an intense tutelage aimed at shaping desired behavior and positive thoughts or cognitions relevant to military life.

The Recruit's Challenge

The recruit's challenge is to acquire the discipline, motivation, physical conditioning and weapons skills that are at the center of

basic training. There is considerable variance in the ease with which these objectives can be obtained. Physical conditioning and competence with weapons often are more readily achieved than are discipline and motivation.

Recruit training is conducted in four stages: processing followed by three training phases. The processing stage is a four to six day period that is designed to acquaint the individual with military life and the members of his training unit (platoon). This stage is an important period of transition from the civilian to the military lifestyle. During this period the recruit completes a number of administrative processing tasks, undergoes various tests and has a thorough medical and dental evaluation. We found that the earlier periods of recruit training are among the points of maximum stress for most recruits.

After processing is completed, the recruit and his platoon are introduced to the drill instructor team that will supervise their entire training. Phase one is a two week period of basic instruction in military skills and knowledge. During this period, a concerted effort is made to increase performance and to instill discipline. At the Marine Corps Recruit Depot at San Diego, where this project was conducted, phase two is carried out at Camp Pendleton. This phase encompasses two weeks of training with the service rifle, one week of combat training, and one week of work duty (mess duty or grounds maintenance). This phase constitutes a period of considerable attainment for the recruit. In phase three the recruit prepares for various tests of military proficiency to be completed prior to graduation. These include the oral and written tests of military

knowledge, physical fitness tests, and evaluation of the platoon's performance at drill.

A major task at the beginning of the project was the mapping of rates, forms, and patterns of attrition among recruits in order to understand the nature of the attrition process and to determine the degree to which attrition results from factors or conditions that are psychologically related and therefore might potentially be influenced by psychological interventions. We analyzed archival data on attrition over a one year period and studied several cohorts of recruits through the training cycle.

Cognitive Factors in the Recruit's Adjustment

The process of adjustment to recruit training can be understood in terms of a cognitive-behavioral analysis of human stress. Two types of cognitive processes are particularly important in this analysis as mediators of stress: the recruit's expectations and appraisals. The expectations concern anticipated environmental demands and the recruit's beliefs about his or her performance capabilities in response to those demands. The appraisals refer to interpretations of the environmental demands and to judgements about one's response to them. Expectations are subjective probabilities about future events and are based on previous appraisals of related circumstances and upon behavioral performance in those situations. Appraisals, which accompany or follow the exposure to environmental demands, are a function of expectations about demands, expectations of performance and self-observations.

We found that recruits form definite expectations about their basic training experiences. Most recruits begin training with

expectations about the physical demands of the training experience but what recruits are often not prepared for, during the initial days, are the psychological demands. They anticipate tests of physical strength and endurance but their first dose of stress derives not from physical, athletic-like challenges, but from an intensely demanding psychological environment.

Many recruits experience frustration at the beginning of training because they perceive themselves as not being able to do anything right. They seem to be unable to do anything that would objectively be considered meritorious. Over the course of training, marked changes occur in the expectations and appraisals of recruits. With each achievement the recruit develops increased confidence in his ability to take on new challenges.

We found that the ability to meet these challenges and to develop a positive self-image marked by a sense of confidence in one's abilities is related to the personal characteristics brought by the recruit to the training situation. Specifically, the development of self-confidence and a positive self image (the recruit viewing himself as a skilled, capable person) is inversely related to negative life experiences, undesirable home environments and unhappiness in school prior to joining the Marine Corps. Indices of maladjustment and unhappiness in the personal history of recruits were predictive of poor performance and attrition. In contrast, the greater the recruit's initial internal locus of control (belief in himself as a person capable of influencing the course of events) the better the performance in training and the lower the attrition rate.

We found that even on the first day of training there exist

certain significant differences between the cognitions of recruits destined to graduate and those who will attrite for psychological or behavioral reasons. Successful recruits, in contrast to the attritors, report significantly lower levels of thoughts related to failure, upset and worry and more readily perceive the training experience as challenging. Attritors are more inclined to perceive themselves negatively and are less motivated to succeed in training. The data further suggest that negative self-appraisals and low motivation are linked with psychological/behavioral attrition. Test anxiety proved to be one of the best predictors of attrition. The attritors had significantly higher test anxiety scores. A measure such as the one used in this study, Sarason's Test Anxiety Scale, might be a convenient and practically useful predictor of performance for recruits. It also appears that some of these variables associated with attrition are also related to the level of performance of those who complete training.

One of the major findings of the project was the important relationship between the training unit environment, on the one hand, and attrition and performance, on the other. According to one theory, attrition results from the striving for high performance standards of the training unit leaders. According to this view, reduction in attrition can be achieved only at the expense of lowered personnel quality and performance. Upon finding that training units vary widely in attrition rate and that this variation cannot be accounted for on the basis of initial composition at forming, the question arises: what is it about the training unit that accounts for significant differences in attrition? An obvious hypothesis is that the

differences are a result of the performance standards of unit leaders. Low achieving recruits might have been dropped to attain high achieving units. On the contrary, however, our research showed that, in fact, there is no simple relationship between attrition and performance, and that there is no empirical support for the belief that training units have high attrition rates because of their high performance standards. There is considerable variation in training unit environments and this variation is associated with considerable variation in recruit performance and attrition. However, attrition rate is not a reflection of differences in the initial composition of the units nor do high attrition units show superior performance achievements. Indeed, platoons with the highest attrition rates had the highest number of recruits who performed poorly on the rifle range.

The overall attrition rate in our first study was approximately 12% with platoons ranging in attrition from 0% to 28%. In the subsequent study the range among platoons was somewhat narrower but it was still quite wide. We created a special grouping factor ATTRITVAR that was defined by aggregating platoons into low, medium, and high attrition groups according to the overall attrition rate distribution. ATTRITVAR makes it possible to categorize platoons in terms of the prior attrition experiences of the drill instructors who are directing the training unit.

One of the important findings in this project concerns changes in the recruits' perceptions of their responsibility for their own behavior (locus of control) over the training cycle period. We investigated the possibility that these changes in generalized

expectancies (toward internal or external locus of control) might occur as a function of the ATTRITVAR variable. We found that changes in the internal direction tend to occur predominately in low and middle ATTRITVAR groups. These effects were clarified by the inclusion of initial expectancy level in the analyses. We found that recruits with initially external locus of control become more internal in the low and middle ATTRITVAR groups. On the other hand, recruits who initially were internal became more external in the high ATTRITVAR groups. The obtained effects were shown not to be due to regression to the mean.

These findings show that the reinforcement contingencies of low and middle ATTRITVAR training units encourage the belief among recruits that successful outcomes result from skill and effort. In contrast, high ATTRITVAR units are more likely to shape the belief that powerful others, luck, fate or chance control reinforcing outcomes. Recruits who had experienced the greatest number of negative life events tended initially to have an external locus of control. However, when placed in low and middle ATTRITVAR platoons they became more internally oriented. Recruits who rated their home life and school experiences in a negative direction or failed to complete high school became significantly more internal when trained in low and middle ATTRIVAR units. The results suggest an important training guideline. Recruits who have had negative or failure experiences in life (failure, rejection, emotional disruption) can develop a belief that success results from their own efforts if they are trained in units whose reward contingencies are favorable to the formation of internal locus of control expectancies. Conversely,

training environments that are characterized by high attrition may induce recruits to expect that rewards are controlled by forces outside of one's control. These changes in expectancies have important implications for the probabilities of both attrition and improvements in competency level.

Longitudinal Study of Marines

Longitudinal studies of members of organizations are useful because they can help characterize the processes of stability and change in the organization. They also have the potentiality of finding or identifying predictors of later performance. We have studied a large sample of recruits who completed training in late 1978. The subjects were initially assessed while in recruit training and were followed up two-and-one-half years later. In conducting the longitudinal study the following general categories of variables were investigated: perceptions of recruit training, attitudes about oneself and the Marine Corps, job satisfaction, current performance, reelistment plans, health status, and psychological adjustment. Marines responded to questionnaires two and-one-half years after their recruit training; Commanding Officers ratings of these Marines were obtained and the Marine's supervisor made subjective ratings of the subject's personal qualities such as motivation, leadership, and military potential. The data also included ratings of the Marines' performance, and their promotions, conduct marks, proficiency scores, physical fitness test scores, unauthorized absences and non-judicial punishments.

Our analysis of data obtained two-and-one-half years after

recruit training make it clear that the subjects studied are dedicated members of the Marine Corps. Their morale is high and they see their recruit training experiences as having been valuable. In particular, they generally feel esteem and appreciation for their drill instructors. In responding to questions about reenlistment plans, a number of the respondents commented negatively about the lack of positive feedback from superiors concerning work performed in an exemplary fashion. A number of subjects seemed to feel some degree of alientation stimulated by the perceived complexity of and distance from the Marine Corps bureaucracy.

From a statistical point of view, drill instructors's ratings of recruits proved to be significantly accurate predictors of recruits' later performance as Marines. This suggests that, by and large, drill instructors are sensitive observers of recruit strengths and weaknesses. Refining this measure for use in predicting individual recruit performance would be of considerable use. For this reason it would be worthwhile to investigate individual differences among drill instructors in their ability to predict the future performance of recruits. It is possible that drill instructors who are proficient in developing the military skills of recruits may also be proficient in predicting who will become a successful Marine.

Stress Coping Intervention with Recruits

Our field observations and analyses of archival data indicated that the most stressful aspects of recruit training occur during the early stages of training. We therefore sought to develop a stress reduction intervention aimed at strengthening stress coping skills. The intervention was implemented through the use of videotaped modules

during the processing period at the receiving barracks.

Two key themes are emphasized in the televised materials: self control of emotions and the importance of task performance effectiveness. The televised material conveys the idea that fear, anger, disappointment and worry are perfectly normal and quite common reactions among recruits. Recruits are reassured that despite their worry and confusion, thousands of recruits who have felt the same way have ultimately succeeded in training. The regulation of emotion theme is closely intertwined with the task performance theme. In order to do well on demanding training tasks, recruits must learn to control self-defeating emotional states and to tune out self-preoccupying thoughts (such as worries) that engender such emotions. They must also process information efficiently, exercise good judgment, attend to detail, endure duress, learn from mistakes and develop the skill of teamwork. The televised material attempted to augment the stress coping skills of recruits by acknowledging the presence of distress, providing useful information about the environment, promoting an adapative cognitive orientation, offering suggestions about coping techniques, and modeling successful coping behaviors.

The televised material was evaluated by conducting an experiment that had five groups. One group was exposed to a televised coping skills module called "Making It," another group saw a comparison film that presented a realistic job preview of Marine Corps training, the third group saw both films, a fourth group saw both films in the reverse order, and the fifth group saw no films. The dependent variables consisted of recruits' ratings of perceived difficulty and

their expectations concerning success or failure for particular training tasks, perceptions of control, adjustment problems, social support, locus of control and other stress relevant indices. We found that viewing the coping skills televised material ("Making It") resulted in a significant increase in efficacy expectations across training tasks. The groups who saw "Making It" reported greater awareness of the rigors of Marine Corps training but also more confidence in their ability to withstand those rigors and achieve success. The "Making It" recruits expressed more self confidence in their ability to perform in several areas including marksmanship, physical training, endurance under stress, controlling emotions, learning essential knowledge, and living up to drill instructor expectations. The findings indicate that the coping skills approach has a significant positive effect on the thinking of recruits during recruit training. These results are particularly impressive when one considers that the treatment was of less than 30 minutes duration.

The Drill Instructor

As our work on the project progressed, particularly in our studies of the training unit environment, the key role of the drill instructor became increasingly evident. Since drill instructor teams shape the training unit environment. We have investigated some of the important stress dimensions of being a drill instructor.

We have examined several cohorts of drill instructors at MCRD San Diego beginning with their entry at Drill Instructor School. The focus of our studies have been on changes in psychological and physiological states. We have developed a "DI Stress Questionnaire"

which will be subjected to further research investigation and that may prove useful in charting the changes among drill instructors over time. Our findings indicate that stress reactions among drill instructors increase significantly as a function of drill field duty. Both self-reported and physiological changes in the direction of increased stress occurred for two drill instructor cohorts during their first year after graduation from Drill Instructor School. In addition, performance evaluations made by their supervisors were significantly related to self-reported stress, that is, high stress was associated with poor performance evaluations. Analyses of heart rate and blood pressure data indicated the drill instructors undergo significant changes in physiological arousal as a function of the amount of time on the job.

These elevations in arousal, moreover, are not attributable to smoking, coffee consumption, or body weight. In addition, it should be noted that the physiological measures were obtained after the subjects had been at rest for a period of 60 to 90 minutes. Of particular note is the fact that the frequency of high heart rate and systolic and diastolic blood pressure readings increased noticeably both in the training period and later on. The number of heart rate readings in excess of 80, systolic readings greater than 150 and diastolic readings greater than 90 increased significantly during the year following the subjects' graduation from Drill Instructor School.

Summary and Conclusion

Recruit performance and attrition are joint products of individual differences variables and organizational processes. In addition to ability factors, the recruit's level of functioning is influenced by cognitive appraisal of the training situation, its demands and what is required to meet them. From an organizational standpoint, the drill instructor sets the tone of the training situation and significantly influences the recruits' appraisals and expectations. How recruits view the challenges confronting them and their ability to handle them can be influenced either by interventions such as specially created televised materials or through the training unit environment as created by the drill instructors. There is a need for longitudinal study of Marines as they develop from raw recruits into career personnel. Among drill instructors there are particular needs to understand how stress influences their handling of recruits and to help them deal constructively with the demands of their difficult, challenging jobs as trainers.

Project Technical Reports and Publications

List of Technical Reports

AR-001	Psychological and Organizational Factors Related to Attrition and Performance in Marine Corps Recruit Training Raymond W. Novaco, Irwin G. Sarason, Thomas M. Cook, Gregory L. Robinson, and Francis J. Cunningham	11/21/79
AR-002	Generalized Expectancies, Life Experiences, and Adaptation to Marine Corps Recruit Training Thomas M. Cook, Raymond W. Novaco, Irwin G. Sarason	4/07/80
AR-003	Military Recruit Training: An Arena for Stress Coping Skills Raymond W. Novaco, Thomas M. Cook, Irwin G. Sarason	3/27/81
AR-004	Recruit Attrition and the Training Unit Environment Irwin G. Sarason, Raymond W. Novaco, Gregory L. Robinson, Thomas M. Cook	4/15/81
AR-005	Cognitive Correlates of Outcome and Performance in Marine Corps Recruit Training Gregory L. Robinson, Raymond W. Novaco, Irwin G. Sarason	10/20/81
AR-006	A Follow-Up Study of Marines Two and a Half Years after Recruit Training Irwin G. Sarason, Raymond W. Novaco, Barbara R. Sarason	11/20/81
AR-ONR-007	Longitudinal Analyses of Stress and Performance Among Marine Corps Drill Instructors Raymond W. Novaco, Irwin G. Sarason, Gregory L. Robinson, Frank J. Cunningham	4/22/82

List of Published Articles

Novaco, R.W., Cook, T.M., & Sarason, I.G. Military recruit training: An arena for stress coping skills. In D. Meichenbaum & M. Jaremko (Eds.), Stress prevention and mangement: A cognitive behavioral approach. New York: Plenum, in press.

Cook, T.M., Novaco, R.W., & Sarason, I.G. Military recruit training as an environmental context affecting expectancies for control of reinforcement. Cognitive Therapy and Research, 1982, 6, (4), 409-427.

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